

(Alfred Stett) Yes, now I am ready. So, thank you very much to have the opportunity to introduce our system.

Frau Kohlhaas, it was a very great presentation of your capabilities that you got again with your Argus II implant. So, I am very impressed. The Alpha AMS, you already know from the talk Eberhart Zrenner gave in the morning, retina implant developed two systems for people suffering from retinitis pigmentosa. One is the OkuStim therapy, that is intended for people that are not blind, it aims that to shift the curve where the visual field decreases in the future and for blind people we made this Alpha AMS available.

As Eberhart Zrenner mentioned already, it is a subretinal implant in contrast to the Argus II implant, we just heard. It is a small light-sensitive chip that it is implanted in the center of the retina beneath the fovea and with this chip people can have back some kind of vision comparable to what we heard already from Mrs. Kohlhaas. This chip contains 40 by 40 pixel and each pixel picks up a part, a small part of the image that is projected to the eye. And each pixel injects a small amount of current into the retina.

This chip is in close contact with the retina and by doing this stimulation so-called phosphenes are evoked in the patient. This system does not contain a camera, so the

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camera chip is implanted subretinally. Externally components are this handheld device, that contains a battery and some means for control contrast and stimulation strength. So, with this implant this natural path of image projection onto the eye and processing within the eye can be used. So it is hardly noticeable, it doesn't need any external camera, as I mentioned before. So, this enables the patient to use the natural eye movement and micro saccades to localize and fixate and follow objects, which are important for object recognition and for giving the eyes a base resolution.

So, as we heard already in the morning, we did a number of clinical studies to show that the implant is safe and is able to provide useful visual perceptions to blind patients, that you can see in the papers and you saw in the presentation of Eberhart Zrenner in the morning. The studies are mostly concerned with so-called vision function. There the capabilities are measured, spacial acuity and so on. But for daily living it is not important how patients are good in recognizing a Landolt C rings or so on, it is more important to be able to use the implant in daily living situations in order to recognize a cutlery on the desk or find a way through openings or find the profiles of buildings and so on.

So, each person has an individual situation where he is most impaired by his blindness. So, we are looking on these situations and we learned that the benefit the patients have from the implant is not similar from patient to patient. So, we also learned and got this feedback from

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the patients that the daily use and the frequent training is very important to create personal benefit. So let me quote one patient, he said: „The chip is comparable to a relationship. If I am only passive and expect the chip to do wonders and solve all problems, then it does not work. It is about the willingness to deal with it. This creates activity and finally personal benefits.“

This is the way to get familiar with this artificial vision, we already heard from Frau Kohlhaas, so it is not a natural seeing. It is an artificial seeing, and the patients have to do exercises and have to use it frequently to get the most out of the implant. So, we developed an after-care concept. It is a vision rehabilitation concept.

Our patient start training, up to a year, intensive training up to a year in the domestic environment, at the home of the patient in order to optimize the stimulation parameters. Doing training at home for localizing and recognizing objects, identifying grey scales, hand-eye coordination and so on. Also important is doing an outdoor training, where it is trained to identify houses, trees and street signs and to recognize obstacles and moving objects.

So, we learned also that it is very helpful to not only learn to see but learn to see together with some haptic tools. So we provide the patients some kind of light box and stencil-like objects, so the patient can touch a triangle or square and can correlate what he feels and what he is seeing. So he is learning step by step, what does it mean, what object is it that he is perceiving with the implant. So

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and then, also very important is to do training outside, and inside, so the ability to train mobility is very important. Here you see two situations, one indoor, where the patient is going through the doorway, we saw him bumping through the door frame. And on the right side you see exercises, he learns what he is seeing, he is able to recognize both road sides together. So it is very natural moving he is learning here.

And the most surprising experience we were reported by a patient, he was able to combine what he is seeing with his memories. So he writes that he was travelling on the North Cape, and he said, „I could walk around on the ship as my device was scanning the light dark contrast with the chip.

It was quite interesting, whenever we were sailing through a fjord I could scan the sky and notice where the rock would begin. This way I could precisely trace the shape of the fjord.“ „And all of a sudden, the contour filled with color - without any eye sight.“ So, to be honest with our implant it is not possible to see colors, but he remembered how the color was when he was there when he was not blind, he learned to combine these impressions evoked by the implant with his memories. Taking all together we are sure this electronic device makes a difference, retina implants Alpha AMS makes a difference.

So electronic devices today are available, are CE marked are very helpful aid for blind people suffering from retinitis pigmentosa. I hope you saw that this implant helps to

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increase independence in daily living, supported by the use of natural eye movement and hand-eye coordination can still be used. So, we have established a rehabilitation program to foster the use of the implant and the integration of daily living situation.

And very important, the treatment in Germany is covered by the health insurance. Let me end my presentation with a quote of another user of the implant, she said, „I was walking down this country lane, I did not have my white stick with me, I did not have my dog with me and suddenly I thought what am I doing here? I am walking along the road on my own.“ And that is what we want to have, that people get back some kind of independence. Thank you very much. (applause)